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Report on Preliminary Survey

PHYSICAL PLANT

MONTANA STATE UNIVERSITY

February 1984

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February 1984

The Legislative Audit Committee
of the Montana State Legislature:

This is our performance audit preliminary survey of the Montana State University Physical Plant Division. The purpose of this survey is to review physical plant functions to determine if further audit work is needed.

Based on the survey, we determined that Physical Plant administration is performing its overall management functions well. The areas for improvement which are discussed in this report are currently being addressed by Physical Plant officials. For this reason we do not recommend conducting a performance audit at this time.

We wish to express our appreciation to the Physical Plant Director and his staff for their cooperation and assistance.

Respectfully submitted,

Scott A. Seacat

Scott A. Seacat
Deputy Legislative Auditor

Approved:

Robert R. Ringwood

Robert R. Ringwood
Legislative Auditor

INTRODUCTION

The following is a preliminary survey of the Montana State University Physical Plant Division. The purpose of the survey was to briefly analyze the Physical Plant's activities to determine if further performance audit work is needed.

The preliminary survey addressed the following four major areas:

--Physical Plant Administration
--Planning for Major Projects
--Custodial Services
--Buildings Operation and Maintenance

AUDIT FEASIBILITY

Our survey results indicate that further audit work would not be beneficial. MSU Physical Plant administration is performing its general management functions well and is aware of general physical plant operating principles as discussed by the Association of Physical Plant Administrators of Universities and Colleges (APPA). Based on the review, eight potential audit areas were identified; however, Physical Plant management is aware of these areas, and we noted that each is already being addressed, or the Physical Plant plans to address them based on our survey findings.

BACKGROUND

Montana State University was founded in 1893 as the Agricultural College of the state of Montana. The school was later named Montana State College. In 1965 it was renamed Montana State University (MSU). The university is a land-grant institution as authorized by the Morrill Act of 1862 and receives part of its support from land-grant income, as well as from state appropriations, student fees, and federal and private grants.

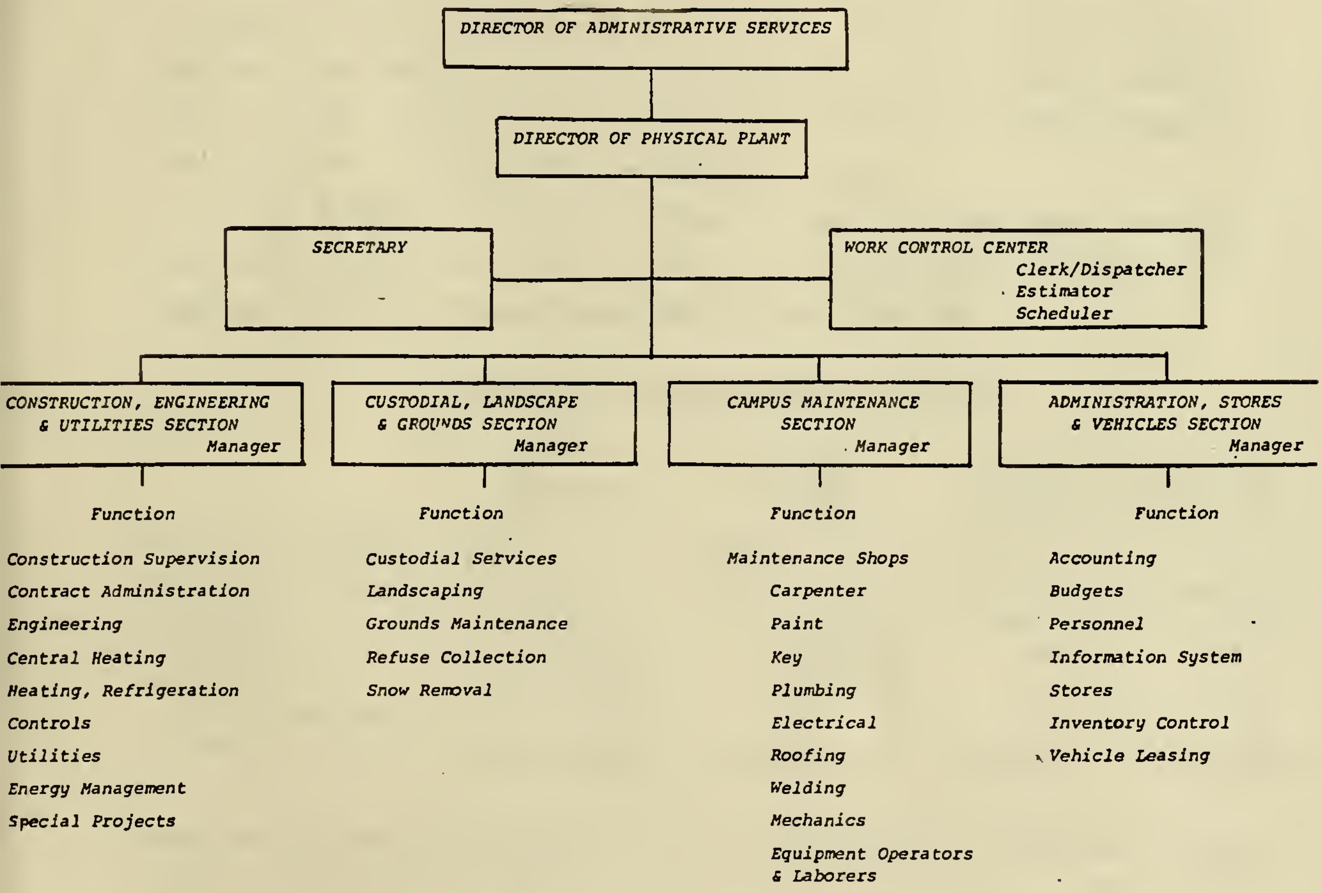
The academic program emphasizes the professions of agriculture, architecture, business, engineering, education, and nursing. Full-time student enrollment was approximately 11,000 during fiscal year 1982-83, and faculty numbered over 500.

The campus is located in Bozeman, Montana on approximately 1100 acres. It includes 186 buildings with a total area of roughly 3.5 million square feet.

Physical Plant Division

Operation and maintenance of the Physical Plant includes expenditures for operations established to provide services and maintenance related to campus grounds and facilities, utilities, and similar operations. The Physical Plant is organized into four sections consisting of 133 employees. Illustration 1 shows the current organization of the Physical Plant Division.

MSU PHYSICAL PLANT
ORGANIZATIONAL CHART



Source: Physical Plant Division, MSU

Illustration 1

Presently the Facilities Planning Division of MSU is a separate entity from the Physical Plant; however, within the year the Facilities Planning Division will be consolidated into Physical Plant operations. Existing plans for the consolidation would create a new division within the Physical Plant titled "Facilities Development and Management."

Physical Plant Funding

Six of the nine departments (construction, engineering, utilities, administration, custodial, and landscape and grounds) are funded through state appropriations. For fiscal year 1982-83, 77.98 FTE were authorized in these areas, with a total appropriation of approximately $4.8 million for the same period.

The three remaining departments (maintenance, stores, and vehicles) are self-supporting entities and do not receive any state appropriated funding. These three departments pay their expenses by charging departmental budgets for material and labor plus a markup to cover administrative overhead costs.

The following illustration shows actual Physical Plant Division operating costs for fiscal years 1981-82 and 1982-83, and the appropriations for fiscal years 1983-84 and 1984-85.

OPERATION AND MAINTENANCE OF PLANT*

	Actual	Actual	Appropriated	
	FY 1982	FY 1983	FY 1984	FY 1985
Personal Services	$1,311,384.71	$1,467,923.37	$1,579,583	$1,579,583
Operating Expenses	2,499,909.57	2,683,875.11	3,131,318	3,408,272
Equipment	64,994.62	247,188.33	100,409	106,431
Capital Outlay	8,924.75	8,248.53	-0-	-0-
Transfers	15,448.05	12,880.16	-0-	-0-
Total Program Costs	$3,900,661.70	$4,420,115.50	$4,811,310	$5,094,286

*Does not include operating costs for self-supporting departments (maintenance, stores, vehicles)

Sources: Statewide Budget and Accounting System and the 1985 Biennium Appropriations Report

Illustration 2

POTENTIAL AUDIT AREAS

ADMINISTRATION

The Physical Plant has developed goals and objectives for each of its sections. It has also developed formal overall goals which include: 1) developing tools to measure productivity, and 2) implementing management systems and procedures to help improve efficiency and goal attainment. Physical Plant management has developed a detailed organizational chart that clearly delineates the structure of operations and lines of authority. The Physical Plant also appears to interact well with the MSU administration.

During our survey we identified two potential audit areas regarding the administration of the MSU Physical Plant:

--Control and Supervision of Street Crew

--No Formal Emergency Plan

Control and Supervision of Street Crew

Organizationally, the street crew is under the direction of the maintenance section; however, the street crew periodically performs work for the landscape and grounds department. We found that the supervision and control of work the street crew does for the landscape and grounds department could be improved.

Prior to doing any work for the landscape and grounds department, the street crew is supposed to obtain approval from the manager in charge of landscape and grounds; however, our survey indicated that the street crew performs some tasks without this prior approval. As a result, the manager of landscape and grounds has not become aware of what work the street crew has done until his department is billed for the work.

The Physical Plant director has indicated he is aware of this problem and has requested that a work order be completed each time the street crew performs work for the landscape and grounds department. Because management has taken action to alleviate the problems, we do not recommend further audit work in this area.

No Formal Emergency Plan

The MSU Physical Plant has the responsibility for maintaining campus facilities in good working condition. It is important, therefore, that the department have specific procedures to follow in the event of a disaster that affects the continued operation of MSU facilities. Although the department has established a list of Physical Plant managers and staff to be contacted in an emergency situation, no formal emergency plan has been developed or tested.

Disaster and emergency preparedness requires that the department establish a detailed plan to allow department staff to respond to disasters appropriately. For example, the plan could include provisions to train Physical Plant staff before a disaster or emergency such as a major fire, power blackout, or earthquake actually occurs.

A performance audit of this area is not feasible at this time since the department has begun to develop an Emergency Action Manual which will provide an emergency response system.

PROJECT PLANNING

Project planning is essential for the Physical Plant to identify and meet the university's future facilities needs. During our review of major repair, renovation, and construction projects we found that projects were undertaken with adequate Physical Plant planning. Examination of planning and construction files and discussions with Physical Plant personnel indicated only one concern regarding the planning process for some major construction projects:

--Physical Plant involvement in major construction planning

Physical Plant Involvement in Major Construction Planning

Survey results indicate that if the Physical Plant had more official involvement at appropriate times during the major construction planning process, some current problems could have been avoided. For example, we noted that one building on campus is designed in such a way as to cause snow to slide off the roof and

accumulate at one of the major entrances to the building. The accumulation of snow and ice impedes entry to the building, as well as being a hazard to pedestrians. Removal of the snow and ice is difficult because groundskeeping personnel cannot effectively operate their snow removal equipment in the confined area.

Prior to construction of this entrance area, Physical Plant personnel informed the construction planners about the potential snow removal problem; however, this review did not occur early enough in the planning process to allow a plan change.

In a second example, we found that some newer buildings are accessed by service vehicles that use the sidewalk systems. Because they were not planned and designed for heavy vehicle traffic, some sidewalks have been broken in various areas, due to the weight of the vehicles.

At this time it does not appear that future performance audit work would be beneficial in this area. The consolidation of facilities planning into Physical Plant operations should allow better coordination of the planning process.

CUSTODIAL SERVICES

During the review we toured a number of buildings at different times and interviewed a sample of university faculty and staff. This work revealed adequate levels of cleanliness in campus buildings. We did, however, identify two areas of concern regarding custodial services:

--Development of job inventories and job standards

--Repair of custodial equipment

Development of Job Inventories and Job Standards

Our preliminary survey work indicates that job inventories (list of standard tasks to be performed) have not been developed for the custodial staff. No performance standards (time and staffing requirements for various jobs or areas) have been established either.

As suggested by the APPA, an effective custodial program should include the development of formal standards for levels of cleanliness (such as "ideal," "medium" and "minimum"), to be used as the basis for determining how much money and time will be needed to achieve the desired level. In conjunction with these standards, the use of comprehensive job inventories, frequent formal inspections, and written "feedback" regarding work quality provide the basis for achieving maximum program effectiveness and efficiency.

During our discussions management indicated it intends to establish such job inventories and job performance standards. In view of this, further audit work is unnecessary at this time.

Repair of Custodial Equipment

We noted that custodial equipment is being repaired by a custodial superintendent, who is one of the highest paid Physical Plant employees. Such duties may not be cost-effective. Further, in view of the lack of job inventories and standards noted, a more efficient use of the superintendent's time may be in supervising and inspecting work and in assisting with the implementation of procedures for improved quality control.

The Physical Plant may find it more cost-effective to find an alternative method for repairing custodial equipment. The possibility of contracting for repair work may be one alternative, or someone in-house who is not in a supervisory position may be able to do the repair work.

Based on our survey work, we do not feel that future audit work in this area would be beneficial. Management is aware of this problem and realizes the need to address it.

BUILDINGS OPERATION AND MAINTENANCE

During our survey, we reviewed the operations of the maintenance section and the work control center within the Physical Plant Division. We toured the MSU campus observing various university buildings to review their general condition. Our inspections indicated that most facilities appeared to be operated and maintained in

good condition. Our survey has identified three concerns in building operations and maintenance:

--Lack of Formal Inspections
--Completion of Work Order Forms
--Accuracy of Estimating Process

Lack of Formal Inspections

Currently the Physical Plant Division does not perform formal inspections of most MSU facilities. Although informal building inspections have been conducted by staff members periodically, systematic and comprehensive inspections have not been conducted and documented.

Without a formal procedure for conducting systematic inspections of MSU facilities, including documenting information, the ability of Physical Plant management to consistently monitor facility conditions is impaired.

During the survey, Physical Plant management acknowledged the need for a formal inspection process for building maintenance. Initiation of the formal preventive maintenance program was intended to begin fulfilling this function, and current plans include continued expansion of preventive maintenance. In view of this, further audit work in this area is unnecessary at this time.

Completion of Work Order Forms

Work orders permit the Physical Plant department to establish work project priorities and to provide a written record of work performed and of job completion. A properly completed work order can provide the department a variety of useful information concerning its daily work. Although the department has been using work orders on a consistent basis, we noted the work order form is only being partially completed. The department is not utilizing the lower half of the work order form which includes: estimated job starting and completion dates, actual job starting and completion dates, documentation of job inspections, and a record of customer comments. By including this information on work orders the Physical Plant would have a more concise and complete source of job reference and control.

The use of the current work order form and its integration into a computerized system were implemented at the start of this fiscal year. Department officials stated they intend to implement use of the complete work order in the future and will integrate it as the computerized management information system is developed further. For these reasons a further review of this concern is not recommended at this time.

Accuracy of the Estimating Process

Our discussions with Physical Plant personnel, and MSU department chairmen who have requested work on occasion, indicated that the cost estimating process is not as accurate as it could be. Physical Plant personnel indicated that projects have often been estimated 10 to 15 percent higher than the actual cost.

Estimating is important in allowing departments at MSU to effectively utilize their funds, since accurate estimating promotes accurate budgeting.

Despite this, we do not believe further audit work in this area would be beneficial. Physical Plant personnel have expressed concern regarding this issue, and in recent months have begun to address the problem. For example, the Physical Plant is now in the process of creating a computerized system showing actual costs and estimated costs for all completed projects. Physical Plant personnel intend to use this information to assist in analyzing the estimating process and in further identifying sources of error in estimates on various types of projects.

SUMMARY

As mentioned previously, we are not recommending a performance audit of the MSU Physical Plant at this time. The Physical Plant management is aware of the concerns expressed in this document, and further audit work does not appear necessary. This document can serve as notification to the Legislature and the Commissioner of Higher Education of the areas which are being addressed by the MSU Physical Plant Division.

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